

REMARKS

The Applicant appreciates the courteous and complete examination of the application by the Examiner. In view of the foregoing amendments and the following remarks, a reconsideration of the instant application is respectfully requested.

In order to expedite the prosecution of this application, claims 10, 11, 21 and 27 have been amended to correct any informalities and/or to overcome all Examiner's objections and rejections. Claims 10-27 are now in this application.

Regarding the Drawings

The Examiner objected to figure 6 because it includes text. The Applicant appreciates the opportunity to amend the drawings and respectfully submits a replacement drawing sheet 5 containing figure 6 which has all nonessential text deleted. The replacement sheet 5 is in compliance with 37 CFR 1.84(p)(5), and is provided herewithafter on page 17 of this paper. No new matter has been entered into replacement figure 6.

Regarding the Specification

The Examiner objected to the abstract for containing more than 150 words. The Applicant appreciates the opportunity to amend the abstract and respectfully submits a replacement abstract section. A marked version of the replacement abstract section is provided in compliance with 37 CFR 1.121(b)(2)(ii). The replacement abstract section reduces the total number of words to fewer than 150 words. No new matter has been included in the replacement abstract.

Regarding the Claim Objections

The Examiner objected to claim 10 for reciting the limitation "the free end" which has insufficient antecedent basis. The Applicant has amended claim 10 to delete "the free end" limitation and replace it with "an outer extremities" which introduces the limitation.

The Examiner objected to claim 21 for reciting the limitations "an blade" and "an vane". The Applicant has amended claim 21 to change the language "an blade" and "a vane" to "a blade" and "a vane" respectively, as suggested by the Examiner.

The Examiner objected to claim 21 for reciting the limitation "the free end" which has insufficient antecedent basis. The Applicant has amended claim 21 to delete "the free end" limitation and replace it with "a radially outer extremities" which introduces the limitation.

The Examiner objected to claim 27 for reciting the limitations "an blade" and "an vane". The Applicant has amended claim 27 to change the language "an blade" and "a vane" to "a blade" and "a vane" respectively, as suggested by the Examiner.

The Examiner objected to claim 27 for reciting the limitation "the free end" which has insufficient antecedent basis. The Applicant has amended claim 27 to delete "the free end" limitation and replace it with "an outer extremities" which introduces the limitation.

Regarding the § 102 Claim Rejections

Regarding Claims 10-12

The Examiner rejected claims 10-12 under 35 U.S.C. 102(b) as being anticipated by Annelius. The Annelius reference does not disclose, teach or suggest "said vane section substantially set at said pitch angle not increased over the pitch angle of said outer extremities of said inner air foil section that it is integrally formed therewith", as in amended independent claim 10. The Annelius invention does not have radially outwards flow vector. Furthermore, the Annelius reference does not disclose, teach or suggest the converting of a stream of fluid/gas or flow into rotational energy or torque, as claimed in the present application. Rather the Annelius reference states a "blade so shaped as to transform its centrifugal movement or action of water or air in which the propeller is rotating at or near the hub into a rearward and preferably inward direction as

it approaches the periphery or outer end of the blade" (line 26). Additionally, the Annelius reference states that "Obviously by arranging the outer face of each blade at an angle to the inner face of the blade, the centrifugal force created by the inner face of the blade will be broken" (line 94). The claimed present invention is substantially structurally different in that amended claim 10 describes a radially outwardly exiting flow. The radial outwardly flow is a vital and significant feature to be encouraged and incorporated into the correct mathematical development of the resultant flows and thus, actual outer vane section shape of the outer vane units.

The vane section of amended claim 10 has an additional significant radially outwards flow vector component being considered in calculating the true "Resultant flow" vectorially through the section of the rotor system and thus results in a larger vectorial value for the actual incoming fluid flow than could otherwise have been expected. The larger value when combined with given tangential flow vector results in a smaller said pitch angle in relation to the axis of rotation than the Annelius reference having no radially outwards flow vector.

The Applicant respectfully points out that the outer vane section of the claimed present invention is always oriented partly towards the rotation direction and also is always frontwardly protruding, and is elongated in shape. Additionally, as has been described, the slight rearward slant of the inner blade section of the claimed present invention is "toward" the rearwardly or exiting flow direction and so must be generally opposite to the "frontwardly" projecting vane sections (see Figs. 2 and 5 of the present application). Therefore it can be appreciated that the Examiner's "Note" stated in the above-identified office action is respectfully believed to be incorrect.

The Application respectfully points out that the true "resultant" flow of any propeller and as disclosed in prior art indeed is almost opposite and very different to the phrase "resultant" flow as relating to a rotor being used as a turbine so this claimed feature of "radially outwardly flow" as disclosed in the efficient use of the present invention as a turbine is of utmost importance and would not be obvious to a person having ordinary skills in the art.

The Applicant requests that the Examiner reconsiders his rejections of the invention in view of the well established principle that small differences in a crowded art

can constitute patentable improvement. See *In re Baum*, 51 USPQ 470 (CCPA 1941) and *In re Lange*, 126 USPQ 365 (CCPA 1960). In considering this principle, the Applicant would also request that the Examiner take note to the court decision which notes that "apparent simplicity has been held to furnish strong argument for patentability where, as here, a need has existed for a structure of the nature disclosed and claimed. The fact that a solution to a problem is simple, or appears to be simple when viewed in retrospect, does not mean that the solution was obvious when it was conceived." See *Ellipse corp. v. Ford Motor Co.*, 171 USPQ 513.

Claims 11 and 12 are felt to patentably distinguish over the prior art references because of their above-mentioned dependency from amended claim 10.

Regarding Claims 10-12 and 27

The Examiner rejected claims 10-12 and 27 under 35 U.S.C. 102(b) as being anticipated by Pearson. The Pearson reference does not disclose, teach or suggest "said vane section substantially set at said pitch angle not increased over the pitch angle of said outer extremities of said inner air foil section that it is integrally formed therewith", as in amended independent claims 10 and 27. The Pearson invention does not have radially outwards flow vector. Furthermore, the Pearson reference does not disclose, teach or suggest the converting of a stream of fluid/gas or flow into rotational energy or torque, as claimed in the amended claims 10 and 27. Rather the Pearson reference states "blades of novel design that may be easily and readily adjusted for either forward or reverse driving" (col. 1, lines 11-13). Additionally, the Pearson reference states that the "propeller blades extend outwardly and in a somewhat leading direction" (col. 2, lines 51-53). In contrast, amended claims 10 and 27 described the inner airfoil section (32') "extending substantially outwards radially from said central hub at a slight rearward angle between 5 and 60 degrees from normal". It can be appreciated that amended claims 10 and 27 are substantially structurally different to the Pearson reference. The radial outwardly flow is a vital and significant feature to be encouraged and incorporated into the correct mathematical development of the resultant flows and thus, actual outer vane section shape of the outer vane units.

The vane section of amended claims 10 and 27 has an additional significant radially outwards flow vector component being considered in calculating the true "Resultant flow" vectorially through the section of the rotor system and thus results in a larger vectorial value for the actual incoming fluid flow than could otherwise have been expected. The larger value when combined with given tangential flow vector results in a smaller said pitch angle in relation to the axis of rotation than the Pearson reference having no radially outwards flow vector.

The Applicant respectfully points out that the outer vane section of the claimed present invention is always oriented partly towards the rotation direction and also is always frontwardly protruding, and is elongated in shape. Additionally, as has been described, the slight rearward slant of the inner blade section of the claimed present invention is "toward" the rearwardly or exiting flow direction and so must be generally opposite to the "frontwardly" projecting vane sections (see Figs. 2 and 5 of the present application). Therefore it can be appreciated that amended claims 10 and 27 have substantial structural differences to the Pearson reference.

The Application respectfully points out that the true "resultant" flow of any propeller and as disclosed in prior art indeed is almost opposite and very different to the phrase "resultant" flow as relating to a rotor being used as a turbine so this claimed feature of "radially outwardly flow" as disclosed in the efficient use of the present invention as a turbine is of utmost importance and would not be obvious to a person having ordinary skills in the art.

The Applicant requests that the Examiner reconsiders his rejections of the invention in view of the well established principle that small differences in a crowded art can constitute patentable improvement. See *In re Baum*, 51 USPQ 470 (CCPA 1941) and *In re Lange*, 126 USPQ 365 (CCPA 1960). In considering this principle, the Applicant would also request that the Examiner take note to the court decision which notes that "apparent simplicity has been held to furnish strong argument for patentability where, as here, a need has existed for a structure of the nature disclosed and claimed. The fact that a solution to a problem is simple, or appears to be simple when viewed in retrospect, does not mean that the solution was obvious when it was conceived." See *Ellipse corp. v. Ford Motor Co.*, 171 USPQ 513.

Claims 11 and 12 are felt to patentably distinguish over the prior art references because of their above-mentioned dependency from amended claim 10.

Regarding the § 103 Claim Rejections

Regarding Claim 17

The Examiner rejected claim 17 under 35 U.S.C. 103(a) as being unpatentable over Annelius in view of Hickey, specifically that the Annelius “teaches all the claimed subject matter” except a generating unit. As proven above, the Applicant respectfully believes that the Annelius reference does not disclose, teach or suggest all the claimed subject matter as described in amended claim 10 which claim 17 depends from.

Therefore, claim 17 is felt to patentably distinguish over the prior art references because of its above-mentioned dependency from amended claim 10.

The field of endeavor stated by the Examiner as being “analogous” is that of the “frontwardly swept blade rotor art” as rearwardly swept blade rotor art cannot possibly contain similar actual leading/trailing edge combinations with respect to rotation direction and is respectfully believed to be erroneously considered in this rejection.

As the Supreme Court recently explained “a patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S., 82 U.S.P.Q.2d 1385, 1396 (2007). Moreover, “[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* (citing *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) cited with approval in *KSR*). “To facilitate review, this analysis should be made explicit.” *Id.* Furthermore, “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning. See *Graham*, 383 U. S., at 36 (warning against a ‘temptation to read into the prior art the teachings of the invention in issue’ and instructing courts to ‘guard against slipping into the use of hindsight’ (quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (CA6 1964))).” *Id.* at, 82 U.S.Q.P.2d at 1397.

Regarding Claim 18

The Examiner rejected claim 18 under 35 U.S.C. 103(a) as being unpatentable over Annelius in view of Kimball, specifically that the Annelius "teaches all the claimed subject matter" except an annular rim. As proven above, the Applicant respectfully believes that the Annelius reference does not disclose, teach or suggest all the claimed subject matter as described in amended claim 10 which claim 18 depends from.

Therefore, claim 18 is felt to patentably distinguish over the prior art references because of its above-mentioned dependency from amended claim 10.

The field of endeavor stated by the Examiner as being "analogous" is that of the "frontwardly swept blade rotor art" as rearwardly swept blade rotor art cannot possibly contain similar actual leading/trailing edge combinations with respect to rotation direction and is respectfully believed to be erroneously considered in this rejection.

As the Supreme Court recently explained "a patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S., 82 U.S.P.Q.2d 1385, 1396 (2007). Moreover, "[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* (citing *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) cited with approval in *KSR*). "To facilitate review, this analysis should be made explicit." *Id.* Furthermore, "[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning. See *Graham*, 383 U. S., at 36 (warning against a 'temptation to read into the prior art the teachings of the invention in issue' and instructing courts to 'guard against slipping into the use of hindsight' (quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (CA6 1964)))." *Id.* at, 82 U.S.Q.P.2d at 1397.

Regarding the Allowable Subject Matter

The Examiner states that claims 21-26 "would be allowable if rewritten or amended to overcome the objections", set forth in the above-identified Office action.

The Applicant has amended claim 21 to overcome every objection, and therefore the Applicant believes that claims 21-26 are now in condition for allowance since claims 22-26 depend from amended claim 21.

Conclusion

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

Applicant has endeavored to address all of the Examiner's concerns as expressed in the Office Action. Accordingly, amendments to the claims, the reasons therefor, and arguments in support of patentability of the pending claim set are presented above. Any claim amendments which are not specifically discussed in the above-remarks are made in order to improve the clarity of claim language, to correct grammatical mistakes or ambiguities, and to otherwise improve the clarity of the claims to particularly and distinctly point out the invention to those of skill in the art. Finally, Applicant submits that the claim limitations above represent only illustrative distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.

With the above amendments being fully responsive to all outstanding rejections and formal requirements, it is respectfully submitted that the claims are now in condition for allowance, and a notice to that effect is earnestly solicited. Should the Examiner feel that there are further issues which might be resolved by means of telephone interview,

the Examiner is cordially invited to telephone the undersigned at (403) 444-5695, or email at davidguerra@internationalpatentgroup.com

No additional fee is due.

Respectfully Submitted,

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